201-15319

rdenison@environmentaldefense.org

06/02/2004 11:30 AM

To: NCIC OPPT@EPA, ChemRTK HPV@EPA, Rtk Chem@EPA, Karen Boswell/DC/USEPA/US@EPA, Anne_lehuray@americanchemistry.com, NCIC HPV@EPA

cc: lucierg@msn.com, kflorini@environmentaldefense.org, rdenison@environmentaldefense.org

Subject: Environmental Defense comments on 2-Propenoic Acid, Zinc Salt (CAS# 14643-87-9)

(Submitted via Internet 6/2/04 to oppt.ncic@epa.gov, hpv.chemrtk@epa.gov, boswell.karen@epa.gov, chem.rtk@epa.gov, lucierg@msn.com and Anne_lehuray@americanchemistry.com)

Environmental Defense appreciates this opportunity to submit comments on the robust summary/test plan for 2-Propenoic Acid, Zinc Salt (CAS# 14643-87-9).

The test plan and robust summaries for 2-propenoic acid, zinc salt, commonly-called zinc acrylate, was submitted by the Acrylates and Methacrylates Panel of the American Chemistry Council. The chemical is a monomer used for the production of polymeric materials. It is produced as a powder and its primary use, according to the test plan, is in the production of golf balls. It is also used in the production of rubber products such as belts and hoses. The sponsor provides a reasonable description of worker safety practices aimed at reducing exposure to the zinc acrylate dusts. The sponsor states that consumer exposures to the monomer are not expected due to its incorporation into extensively crosslinked polymer, although no data on the actual extent of residual levels present were provided to support this statement. No information was provided on the potential for environmental releases.

The test plan and robust summaries are reasonably complete and the sponsor asserts that existing data are sufficient to meet HPV requirements for SIDS endpoints. An essential assumption underpinning that assertion is that zinc acrylate readily dissociates in aqueous environments to the zinc ion and acrylic acid, so that data for acrylic acid can be used for most endpoints. While this approach certainly appears justified for aquatic toxicity endpoints, the justification is less compelling for mammalian health endpoints relevant to dermal and inhalation exposure circumstances. The test plan states that when zinc acrylate is applied to the skin very little dissociation occurs; and it can be assumed that dissociation will not occur readily in the airways. Therefore, zinc acrylate in its intact form could possibly cause inhalation or dermal toxicities, although we concur with the sponsor that once absorbed, dissociation to zinc and acrylic acid will occur. Therefore, we recommend that the sponsor provide additional justification for not conducting repeat dose studies on zinc acrylate using the dermal or inhalation route of exposures. Additional justification for our recommendation comes from the knowledge that zinc acrylate is produced as a powder.

In vitro genetic toxicity tests indicate that acrylic acid is positive for chromosomal aberrations in CHO cells, and it is also positive in the in vitro mouse lymphoma assay. No in vivo mutagenicity data are available, yet the sponsor does not intend on conducting such tests. We disagree and recommend that in vivo mutagenicity studies be conducted.

Other points are as follows:

1. Acrylic acid is highly toxic to green algae (EC50 of 0.04 mg/ml). Has acrylic acid been found in environmental samples?

2. Repeat dose studies on acrylic acid indicate that it causes toxicity to the nasal mucosa and several clinical chemistry markers are altered, which suggest liver and kidney toxicity. Moreover, absolute brain weights are decreased. Thus, it appears that zinc acrylate is a broad spectrum toxicant. Does the sponsor have any information on the mode of action and pharmacokinetic data that can help to interpret the toxicological findings?

Thank you for this opportunity to comment.

George Lucier, Ph.D.
Consulting Toxicologist, Environmental Defense

Richard Denison, Ph.D.
Senior Scientist, Environmental Defense